WE CLAIM:

1. A peripheral shelf controller employed in a peripheral shelf of a multi-shelf communications network node, the shelf controller comprising:

   a. a selector specifying an External SYNChronization (ESYNC) signal from a plurality of ESYNC signals received via a plurality of interface cards associated with the peripheral shelf;

   b. a comparator, responsive to the selector, deriving phase difference information between the selected ESYNC signal and a System SYNChronization (SSYNC) signal distributed to the peripheral shelf from a control shelf of the multi-shelf communications network node; and

   c. transmission means for conveying the phase difference information for the selected ESYNC signal to the control shelf,

   employing the selector and the comparator providing flexibility in conveying any ESYNC signal from any interface card associated with the peripheral shelf to the control shelf of the multi-shelf network node over a reduced infrastructure.

2. The peripheral shelf controller claimed in claim 1, wherein the transmission means further includes an ESYNC phase difference information encoder encoding the derived phase difference information, the conveyance of phase difference information to the control shelf further including digital transmission of phase difference information as a corresponding digitally encoded phase error word.

3. The peripheral shelf controller claimed in claim 1, wherein a control services link connects to the peripheral shelf controller for conveying the SSYNC signal distributed thereto.

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4. The peripheral shelf controller claimed in claim 1, wherein a control services link connects to the peripheral shelf controller for conveying ESYNC phase difference information digitally to the control shelf.

5. The peripheral shelf controller claimed in claim 4, wherein the control services link further includes an E1/T1 trunk, the SSYNC signal being embedded in a down-link frame marker without utilizing additional resources of the multi-shelf communications network node, the comparator determining phase difference information between the selected ESYNC signal and analog characteristics of the frame marker.

6. The peripheral shelf controller claimed in claim 4, wherein the control services link further includes one of an E1/T1 trunk, an Ethernet link and a serial link, wherein conveying phase difference information digitally to the control shelf further employing one of the E1/T1 trunk, the Ethernet link and the serial link.

7. The peripheral shelf controller claimed in claim 1, further comprising a peripheral shelf controller card connectable to the peripheral shelf.

8. A controller employed in a control shelf of a multi-shelf communications network node, the controller comprising:

   a. reception means receiving a plurality of phase difference information streams;

   b. a selector for selecting a phase difference information stream from the plurality of phase difference information streams; and

   c. an External SYNChronization (ESYNC) signal regenerator providing an ESYNC signal derived from the selected phase difference information stream and a System SYNChronization (SSYNC) signal to a System Synchronization Unit (SSU) for synchronization of the SSYNC signal to the regenerated ESYNC signal,

the selector and the ESYNC signal regenerator providing flexibility in receiving at the control shelf any ESYNC signal from any peripheral shelf associated with the multi-shelf network node, employing the selector further reducing the complexity of a the control shelf.

9. The controller claimed in claim 8, wherein the reception means receives a plurality of digital phase difference information streams each of which further comprising a stream of phase error words, digital transmission of phase difference information reducing signal skew and jitter effects.

10. The controller claimed in claim 9, wherein the reception means further connects to a plurality of control services links each of which corresponding to a peripheral shelf of the multi-shelf communications network node for receiving of phase difference information stream therefrom.

11. The controller claimed in claim 10, wherein the control services link further comprises one of an E1/T1 trunk, an Ethernet link, and a serial link for digital reception of the digitally encoded phase difference information stream from the corresponding peripheral shelf.

12. The controller claimed in claim 8, further comprising a shelf controller card connectable to the control shelf of the multi-shelf network node.

13. A method of conveying an External SYNChronization (ESYNC) signal received via a peripheral shelf of a multi-shelf network node to a control shelf thereof, the method comprising steps of:

    a. receiving a plurality of ESYNC signals from a corresponding plurality of interface cards associated with a peripheral shelf;

    b. selecting an ESYNC signal from the plurality of ESYNC signals received;

c. deriving phase difference information from a comparison between the selected ESYNC signal and a SSYNC signal provided from the control shelf; and

d. conveying phase difference information regarding the selected ESYNC signal from the peripheral shelf to the control shelf,

selecting the ESYNC signal and deriving phase difference information at the peripheral shelf providing flexibility in conveying ESYNC signals from the interface cards associated with the peripheral shelf to the control shelf of the multi-shelf network node over a reduced infrastructure.

14. The method claimed in claim 13, wherein conveying the phase difference information, the method further comprises a step of: encoding the phase difference information into digital phase difference information.

15. The method claimed in claim 14, wherein encoding phase difference information into digital phase difference information, the method further comprises a step of: encoding the phase difference information into a phase error word.

16. The method claimed in claim 14, wherein encoding phase difference information into digital phase difference information, the method further comprises a step of: encoding the phase difference information into a stream of phase error words.

17. The method claimed in claim 14, wherein conveying the phase difference information, the method further comprises a step of: digitally conveying the phase difference information over a control services link to the control shelf of the multi-shelf network node.

18. The method claimed in claim 17, wherein digitally conveying the phase difference information over a control services link, the method comprises a step of: digitally conveying a phase difference information stream over the control services link.

19. The method claimed in claim 18, comprising subsequent steps of:

    a. selecting a digitally encoded phase difference information stream from a plurality of digitally encoded phase difference information streams received at the control shelf; and

    b. deriving a corresponding ESYNC signal based on the SSYNC signal and the selected phase difference information stream.

20. The method claimed in claim 19, further comprising a step of: providing the derived ESYNC signal to an System Synchronization Unit (SSU) for frequency locking and phase locking thereto, providing SSYNC signal synchronization to any ESYNC signal received at the plurality of interface cards associated with the multi-shelf network node.